(1948) Department

SERIES.

G.O. No. 4584

Dated 7-9-1948

[Despatch Abstract.]

Agriculture - Education - Diploma Course in Horticulture for Agriculture
and botany graduates and certificate course in Horticulture for S.S.L.C

AGRICULTURAL DEPARTMENT

From
M.S. Sivaraman, Esq., I.C.S.,
Director of Agriculture,
Madras.

To
The Secretary to Government,
Development Department,
Madras.

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PROSPECTUS OF THE DIPLOMA COURSE IN HORTICULTURE

FOR GRADUATES AND THE CERTIFICATE COURSE

IN HORTICULTURE FOR S.S.L.C. HOLDERS.

The two courses are being run by the Madras Agricultural Department for the trainihg of young men and women in the art and science of Horticulture. The training given is in the theoretical as well as the practical aspects of Horticulture leading to the grant of a Diplo in Indian Horticulture (D.I.H.) for graduates and a certificate of Proficiency in Horticulture for S.S.L.C. holders. The diplomas and certificates will be awarded by the Department of Agriculture, Madras. only to those who are declared to have passed the prescribed tests.

1. Rules of the Diploma Course in Horticulture and the Certificate Course in Horticulture.

(N.B. These rules are subject to such alterations as may be ordered from time to time)

Object:- The courses are intended for the scientific and practical training of those who intend to make Horticulture their main Profession.

Control: 2. The responsibility for the discipline and management of the courses is vested in the Fruit Specialist, Madras, under the control of the Director of Agriculture, Madras.

Courses of Instruction: 3. Both the courses extended over a period of one year each. The diploma course provides for a thorough training in practical Horticulture on Scientific Principles, together with the teaching of the fundamental sciences allied to Horticulture. The Certificate course provides for primarily a Practical training in Horticulture, but also with the teaching of the rudiments of all sciences allied to Horticulture.

The number of students admitted each year is restricted to 20 for the Diploma and 25 for the Certificate Course. A small number of candidates not exceeding ~~exc~~ 10 deputed by the Central or other Provincial Governments may be admitted provided their stipends and tour expenses are paid for by the respective Governments.

Admission: 4. Students from all parts of the Indian Union without distinction of caste, race, or sex, are eligible for admission but preference will be given to those from the Madras Presidency.

At present not less then 17 seats in the Diploma Course are reserved every year for the Upper Subordinates of the Madras Agricultural Department and not more than 3 seats for outsides who are Botany graduates.

For the Certificate Course, 20 seats will be reserved for departmental candidates, and applications from such candidates will be considered on merits by the Director of Agriculture. The total number of admissions is however limited to 25 candidates per year for this course.

In selecting the candidates for either course, endeavour will be made to ensure as far as possible that all parts of the Presidency are fairly represented. The order that is intended to be adopted is to allot the seats roughly as under:

Area	Diploma Course	Certificate Course.
1. Telugu area including Rayalaseema	8	10
2. Tamil Nad	8	10
3. West Coast	3	4
4. Hill areas (including the Nilgiris)	1	1

Selections for these courses from Departmental candidates will be made by the Director of Agriculture, Madras. Private candidates for admission may be required to appear at their own cost for an interview at Madras.

(5.a) Candidates for the diploma Course shall be required to have passed the B.Sc. (Agriculture) examination of the Madras or Andhra University or an equivalent examination of a University recognised by the Government of Madras; are less than 45 years of age at the time of application; have been in Government service in the Department of Agriculture for not less than one year and have shown an aptitude for horticultural work or evidence of their usefulness in any horticultural line.

or

have passed the B.Sc., or B.Sc. (Hons.) examination in Botany of any of the Universities in the Province of Madras or an equivalent examination of other recognised universities, possessing besides either some previous experience of researh in Horticulture or other additional post graduate qualifications deemed useful by the Director of Agriculture or any other appropriate authority of the Government of Madras for entrance to a horticultural line or profession. These candidates should be less than 28 years of age at the time of admission to the course.

Applications must be submitted through proper channel and be accompanied by the following certificates in origina;:-

1. University certificates.
2. Testimonials of good character covering the previous two years
3. Certified copy of the marks secured at the last university examination and
4. Chalan of Rs. 5/- (Rupees five only) towards registration fee paid to the credit of . . . . in any Government treasury or into any branch of the Imperial Bank of India

(b) For the Certified Course, the candidates shall be required to have the completed S.S.L.C. certificates; are less than 28 years of age at the time of admission to the course and in the case of Government servants in the Agricultural Department have been in service for period of not less than 3 years. They should submit ch along with their applications:-

1. S.S.L.C. certificates with certified copy of marks obtained in the examination;
2. Leaving certificate from the head of the Institution last attended;
3. Testimonials of good character covering the previous two years; and
4. Chalan of Rs. 5/- (Rupees five only) towards registration fee paid to the credit of in any Government treasury or into any branch of the Imperial Bank of India.

(c) Selected candidates in the case of all those who are not already employees of the Government in the Agricultural Department should produce a certificate of Physical fitness granted by a register medical practitioner.

(d) All applications for admission should made in the prescribed form and must reach the Director of Agriculture, Madras on or before t every year. Application forms are appended and these may be adopted.

6. Candidates of both the Courses will be taken on tours to such places as may be fixed by the Fruit Specialist, under the orders of the Director of Agriculture, Madras. During such tours, which will roughly extend to 3 months in the year, they shall be entitled to be paid Travelling Allowance as per Madras Travelling Allowance Rules if they are Government servants deputed by the Director of Agriculture, Madras. Others will be paid the actual fare on their carriage by rail or on road. Tours:

7.(a) The Upper Subordinates of the Agricultural Department who are selected for the Diploma Course will be deemed to be on duty and shall be eligible to draw their normal pay and dearness allowances. Stipends:

(b) The other candidates of Diploma Course will be paid a sti pend of Rs. 100/- per mensem with dearness allowance, similar to depa mental candidates drawing that salary for the period of one year whi they are under training.

(c) Fieldmen in active service who are selected to undergo tra ing in the Certificate Course will be g eligible to draw pay as in th regular line, including dearness and travelling allowance.

(d) Non-departmental candidates who are selected for this cour shall be paid Rs. 20/- per mensem each without any dearness allowance They will however be paid actual cost of their carriage by railway o by road.

(e) Every candiate undergoing the training will be required to sign an agreement that he will serve the Government for a period of five years if called upon to do so. He may however accept other serv with the permission of the Government.

Books: 8. Each candiate must provide himself with his own books an other materials required for laboratory, nursery and orchard wo

Fees: 9. No tuition fee is charged, but the candidates of both the courses shall deposit a sum of Rs. 10/- each as caution money to cover breakage, loss etc. if any. Any balance at the credit of the student shall be repaid at the end of the course.

Students Club: 10. Students of Diploma and Certificate Course shall pay a subscription of Rs 10/- every year for games and library acti vities, while students of Diploma Course shall also pay a fee o Rs. 5/- for symposium and other scientific activities payable in two equal half-yearly instalments.

Terms: 11. The Certificate of attendance required to enable the candidates to sit for the annual examination will be granted onl to those who

(a) kept three-fourths of the attendance for the year,
(b) shown satisfactory progress in their studies.
and (c) paid all demands against them that are due under the Diploma and Certificate Course Rules.

N.B. The calculation of attendance will be made on the number of working days and attendance as shown in the attendance registers, fractions of less than half a day being dis-regarded.

2) Candidates who are already in Government Service may b granted leave as per Rules, but they shall keep the requi ed attendance for the year regardless of their eligibilit for leave if they are to sit for the final examination.

12. All candidates shall appear for the terminal Examinations: to be held quarter and shall not have eompleted their course unless they sit for examinations and show fair progress to the satisfaction of the Fruit Specialist.

Candidates will not, except in very special cases, be allowed to absent themselves from the terminal examinations. If they fare badly in them, they will hot be permitted to appear for the final examination

13. There will be four theory papers and three practical examina tions for the final examination for the Diploma Course in the following subjects.

	Maximum	
	Theory	Practical
I. Fundamentals of Horticultural Science.	150	Nil
II. Individual Horticultural crops	150	100
III. (i) Fruit Products, (ii) Pests and (iii) Diseases	75	75
IV. (i) Olericulture, (ii) Ornamental, (iii) Plantation and other horticultural crops.	75	75
V. Tour Journals	--	25
VI. Library and Symposium	--	50
VII. Record of Practical work	--	25

Certified Course:

There will be two theory papers and two practical examinations.

	Maximum Theory	Maximum Practical
I. Fruit Crops	150	100
II. (i) Vegetables, (ii) Ornamental Gardening and (iii) Horticultural Crops (iv) Pests and (v) Diseases . .	100	50
III. Tour Journals.	--	25
IV. Records of Practical work..	--	75
		500

14. The minimum of marks to qualify a candidate to receive a Diploma or Certificate shall be 40% of the total number of marks and candidates obtaining these will be placed in the 3rd class. Those obtaining a minimum of 50% will be placed in the 2nd class while those getting 60% and above will be placed in the 1st class. For the award of distinction in any one subject the candidates should obtain 60% or more in that subject.

Board of Examiners: 15. The final examination for the Diploma Course will be conducted by a Board of Examiners comprising one internal examiner and one external for each of the papers I and II, selected by the Director of Agriculture. In all other subjects examiners will be selected from the members of the Department, shall be paid an honorarium of Rs. 150/- plus single second class fare to and fro from place of residence. Board of examiners for the Certificate Course will be selected by the Director of Agriculture from the members of the Department.

Diplomas and Certificates: 16. A candidate who is declared to have passed in the examination of the Diploma Course will receive his Diploma at Madras in the usual course at a function to be specially held for the purpose. Similarly, the candidate who is declared to have passed in the annual examinations of the Certificate Course will receive his certificate.

Leave and Application: 17. Leave of absence shall be obtained only on application to the Fruit Specialist in the prescribed form.

Punishments: 18. Candidates are liable for punishments ~~by~~ by the Fruit Specialist for breaches of discipline, neglect of their studies or for any other sufficient reason. Cases of expulsion or permanent or temporary rustications ordered by the Fruit Specialist shall be reported to the Director of Agriculture, Madras whose decision shall be final.

Hostel 19. Pending the establishment of a hostel, candidates are permitted to reside in any place they choose, provided they arrange to attend the classes punctually and regularly.

Prospects of successful Candidates: 20. Such of the holders of the D.I.H. Diplomas as had been in Government service in the Agricultural Department prior to their selection will revert back to the department service; other diploma holders will be eligible for the following appointments in the Agricultural Departments but no appointments of any kind are guaranteed.

SUBORDINATE SERVICE.

(1) Research Assistans, Agricultural Demonstrators, Farm Managers or Teaching Assistants on Rs.100-5-160 E.B. 10-220.

(2) Superintendents of Agricultural and Fruit Research Stations, District Agricultural Officers, Assistant Research Officers or Lecturers on Rs. 200-30/2-260-40/2-500-50/2-700.

Appendix I

SYLLABUS FOR THE DIPLOMA COURSE IN HORTICULTURE FOR GRADUATES IN AGRICULTURE AND BOTANY

I. Climate, Soils, manures and Manuring:-

Climate:- The influence of climate on fruits crops with special reference to South Indian fruit zones.

Soil:- Types of soil suitable to fruits-Soil improvements Tillage operations- Drainage - Rotation - Inter-cropping Soil conservation.

Manures and Manuring: Principles of manuring and soil fertility - Farm yard manure - Artificial fertilisers - Green manures - Application of manures and fertilisers Deficiency diseases and symptoms, with control measures.

II. Selection of site and layout:-

Principles underlying the selection of site for fruit - Home and commercial Garden.

Lay-out:- Importance and procedure - Terracing - Roads, walks and paths - Hedges and wind-breaks.

III. Propagation methods and nursery practices:-

Sexual and vegetative methods - Propagation by seeds, cuttings, suckers, runners, splits, layering, marcottage, budding and grafting - Top-working - Preparation and culture of seed-beds-Transplanation and spacing - Sepration and nursing of grafts - Relationship between root-stock and ~~science~~ - Selection of rootstock and scions parents.

IV. Cultural Practices:-

Clean culture versus grassed orchards - shallow and deep cultivation - Orchard and nursery tools and their uses - Seasons for the operations - Irrigation - Check, flood, basin and furrow methods - Mulching-Peculiarities of water requirements of different fruit crops - Intercropping.

V. Training and Pruning:-

Shoot and root pruning - Ringing -Notching - Smudging - deblossoming and thinning - Training and pruning practices.

VI. Systematic Pomology:-

Classification and nomenclature of the common orchard crops of South India.

VII. Individual Fruits:-

A study of the peculiarities of raising and culture of mango, banana, citrus, sapota guava, pomegranate, grape, pineapple, fig, annonceous fruits, jak, papaya, melon, watermelon, magosteen, avocado, durian, litchi, bread-fruit, apple, plum, peach, strawberry, zizyhus, cashewnut and minor fruits.

VIII. Harvesting and preparation of the produce for the market:

Picking, curing, grading, and packing.

IX. Sterility and Pollination:-

Pollination with special reference to self-fertility, self sterility, cross-fertility or sterlity etc

X. Horticultural Physiology:-

Physiology of growth and development - Flower bud initiation - Fruit shedding and fruit development - Growth promoting substances and their value in inducing root formation - preventing fruit shedding etc.

XI. Fruit Pathology:

Symptoms, causes, control and preventive measures for the important fruit diseases and pests - preparation and application of common fungicides and insecticides.

XII. Storage and transport:-

Principles of cool and gas storage - methods of transport Marketing methods and improvements

XIII. Fruit Products:-

Principles of canning and preservation - Preparation of canned fruits, fruit squashes, cordials and syrups, jams, jellies and marmalade candies and crystallised fruits, sauce and chutney, pickles and vinegar Drying and dehydrating.

XIV. Composition and nutritive value of important fruits:-

With special reference to their vitamin and mineral contents.

XV. Fruit Breeding:-

Methods employed and achievements so far recorded in plant breeding as applied to fruit crops.

XVI. Other Horticultural Crops:-

Rudiments of Olericulture, Ornamental gardening, culture of plantations and beverage crops.

Practical work.

Examination of differnt kinds of soils; Practice in selection of site for an orchard; Preparation of designs for lay-out and establishment of home and commercial orchards, Practice in all methods of propagation and in major nursery practices.

Use of nursery and orchard tools.

Identification of the common south Indian varieties and kinds of fruits.

Lay-out of orchards under actual field conditions.

Planting of trees.

Orchard practices like irrigation, grove culture etc.

Methods of compositing - application of manures and fertilisers.

Practice in training and pruning.

Identification of fruit and vegetable shoots.

Lay-out of simple ordhard trials - Collection of the data on growth, yield etc. Statistical analysis of the data and interpretation of the results.

Practice in picking, grading and packing.

Pollination experiments - study of the pollination mechannism in mango, cashew, citrus and plums

Identification of the major pests and diseases of fruits. Preparation of fungicides and insecticides.

Practice in the preparation of the more important South Indian fruit products.

Practice in tree and bud selection - Maintenance of performance and cultural records- Estimating orchard efficiency.

Identification of common ornamental plants, vegetables, Plantation crops and products.

The trainees should also maintain a detailed record of the results of their study and observations made during their three months' tours to orchards, experiment stations, nurseries, grading stations, storage plants, markets, exhibitions, etc. These tours have to be undertaken in differnet seasons to suit the varied crops and their different harvesting periods.

They are also required to maintain clear accounts of their contributions to symposia with a review of the proceedings of such scientific discussions and conferences.

The trainees should also maintain a very brief record of all library work done or horticultural literature read, in a systematic manner, as also of all practical classes attended during the year.

Sd/-x x x x
Gazetted Assistant,

Appendix II

SYLLABUS FOR THE ONE YEAR'S DIPLOMA/CERTIFICATE COURSE FOR FIELDMEN.

A. Theoretical.

Climate:- Influence of climate on fruit growing. Natural fruit growing zones of the province with the commercial varieties of fruits and kinds in each. Distinction between tropical, sub-tropical and temperate region fruits.

Soil:- Types of soil suitable to various fruits. Water tables and influence in limiting fruit production. Degree of tolerance of different fruits to alkalinity and salinity. Orchard drainage practices.

Manures and Manuring:- Methods to determine manurial requirements. Different manurial practices with their merits and demerits. Methods and seasons and application. Maximum dosage of manures and fertilisers Trace elements. Green manuring as applied to fruits.

Site selection and lay-out:- Principles underlying the selection of selection of sites for fruit growing and fruit nurseries. Home and commercial orchards. Methods of layout of orchards and nurseries. Influence of topography and shelter including windbreaks on orcharding. Terracing methods. Hedges, road, Paths and fencing. Planting methods and seasons.

PROPAGAT ON METHODS AND NURSERY PRACTICES.

(a) Sexual :- Propagation by seed including the value of seed selection methods of sowing etc. Defects and advantages Polyembryony.

(b) Asesual:- Technique of propagation by cuttinge, suckers, runners, splits, builbs, layering, marcottage, budding, grafting, double working and top-working. Application of the various methods to different fruits with merits and de-merits of each.

(c) Nursery Practices:- Preparation of seed and nursery beds. Transplantation and spacing. Separation and nursing of grafts. Nursery tools and implements. Bandaging materials. Growth regulating substances and their value in nursery and orchard.

(d) ~~Orchard-p~~ Stionic relationship:- Rootstock - scion relationship-selection of rootstock and scion parents. Rootstocks suitable for commercial South Indian fruits.

(e) Orchard practices:- Sod and clean culture. Shallow and deep cultivation. Orchard implements and their uses. Seasons of tillage operations. Inter-cropping--Principlesand application to South Indian fruits. Irrigation by check, flood, basin and furrow methods . Water requirements for different fruits in different seasons. Soil testing for ~~determing~~ application.

TRAINING AND PRUNING.

(a) Training:- Vase, open centred and modified leader. Unilateral bilateral cordon methods with variations. Pergola or pandal systems. Kinds of live supports and their merits and de-merits.

(b) Pruning:- Vegetative and fruit spurs. Mode of bearing in commer fruits. Kinds of pruning as applicable to commercial fruits. Seasons Notching, ringing, smudging, thinning, deblossing and root-pruning. Their value and application.

Systematic Pomology:- Nomenclaure and classification of commercial fruits. Indentification methods.

Individual fruits:- Special features of raising and culture of mango banana, citrus, sapota, guava, pomegranate, papaya, melons, megosteen avocado, litchi, bread-fruit, apple, plum, peach, pear, durian, straw berry, straw-berry, ziziphus and minor fruits.

Harvesting:- Picking, curing, grading and packing.

Sterility and pollination:- Pollination in different fruits with spec reference to self-sterility and self-fertility. Orchard layout to secure optimum fruit set on the above considerations.

Physiology:- Physiology of growth, flower bud-intiation, fruit development and ripening.

Horticultural Pathology:- Methods of fruit plant protection. Symptoms causes and control methods of the more important diseases,. Indentification and control of important fruit pests.

Storage and Transport:- Cool and gas storage. Methods of transport.

Processing:- Brief hints on principles of canning. Preparation of fresh fruit beverage, jams, jellies, marmalades and preserves. Drying and dehydration. Sauces, chunnies and pickles. Candy.

Food value and nutrition:- Composition and nutritive value of importa fruits with special references to their vitamin and mineral contents.

Crop Improvement:- Breeding methods in relation to fruit crops with past achievements. Tree and bud selection with their role on fruit improvement. Methods of locating and testing bud sports.

General (a):- Role of fruits in the province's economy with special reference to economic exploitation of land and increase of food per unit area.

(b) Common defects in the present day orcharding and nursery practices with methods of improvement

Other Horticultural Crops:- Culture of vegetables. Ornamental gardeni Farming of beverage and other plantation crops.

B. PRACTICAL WORK.

Examination of ~~different~~ kinds of soils for commercial growing of various fruits.

Preparation of designs for typical commercial and home orchards Practice in site selection with special reference to practical problem like soil, irrigation water, location, etc.

Practice in all methods of propagation and in majore nursery practi

Practice in the use of garden tools.

Practice in different methods of pruning and training. Identification of fruit and ~~vetative~~ spurs.

Identification of the common South India fruit varieties and trees with rootstock potentialities. Practice in irrigation and manurial practices.

Practice in maintenance of orchard performance and cultural records, and in analysing orchard efficiency.

Identification of bud sports and practice in bud selection. Practice in laying out and conduct of simple orchard trials on manuring, varieties, pruning, etc.

Practice in picking, grading and packing.

Practice in hand pollination.

Identification of majore diseases and pests. Preparation of fungicides and insecticides. Use and maintenance of spraying and dusting equipment.

Practice in the preparation of important and typical fruit products.

Visits to important commercial orchards and nurseries to get acquainted with the defects in maintenance methods and t with possible means of improvement will form an important part of the course. Such visits will be undertaken in difficult seasons. Visits to fruit research centres, assembling, gaading, packing, and maketing centres as well as to fruit stores and exhibitions will also be arranged. Candidates shall haveto maintaining records of all such towns for scrutiny by the examiners. A complete record of all practical work done during the course has also to be maintained for a similar scrutiny.

A P P E N D I X III

APPLICATION FORM FOR ADMISSION TO THE DIPLOMA COURSE IN HORTICULTURE, MADRAS.

1. Name of the candidate (in full as in block type)

2. Residence Village Taluk Distrikt

3. Caste or community to which the candidates belongs

4. Age on date of application years Months
   (Date of birth also should be given)

5. Details of University examinations passed:-

S.No.	Name of Examination	Year of completion	College	Register Number	OPTIONAL SUBJECTS

6. Post-graduate work done with details:
   (Details of service may also be given here)

7. Any other evidence or information of the horticultural bias or experience of the candidate or research work done by him with details or reason for seeking admission to the course:

8. Name of the occupation of father or guardian:

9. Character Certified by Name:
   Address:

10. Work including Horticultural experience and bias if any, authenticated by Name:
    Address:

11. Postal address of candidates:

Station

Date Signature.

To
The Director of Agriculture,
Madras.

/True copy/

A P P E N D I X IV

APPLICATIION FORM FOR ADMISSION TO THE CERTIFICATES COURSE IN HORTICULTURE, MADRAS.

1. Name of the candidate (in full and in block type) . . . . . .

2. Residence Village . . . . Taluk . . . . District . . .

3. Caste or community to which the candidate belongs . . . . . .

4. Age on date of application . . . . years . . . . . Months. .
(Date of birth also shoudd be given) . . . . . .

5. Details of S.S.L.C. and Higher examinations passed if any . . .

. . . . . .

S.No.	Name of Examination	Year of completion	School	Register Number	Optional Subj

6. Details of service or other occupation held:

7. Any other evidence or information of the Horticultural bias or experience of the Candidate, or reason for seeking admission to the course:

8. Name and occupation of father or guardian:

9. Character certified By : Name:
Address:

10. Work including Horticultural experience if any, authenticated by : Name
Address:

11. Postal address of the candidate:

Station . . . . . .

Date . . . . . .

Signature.

To

The Director of Agriculture
M a d r a s.

SP. /True Copy/

GOVERNMENT OF MADRAS
Abstract

Agriculture - Education - Diploma Course in Horticulture for Agriculture and Botany graduates and certificate course in Horticulture for S.S.L.C. Holders - prospectus and syllabus - approved.
x-x-x-x-x -x-x-x-x-x-x-x-x -x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x

DEVELOPMENT DEPARTMENT

G.O.MS.NO. 4584. Dated the 7th September 1948

READ the following:-

G.O.Ms.No. 4155, Development dated 25-6-1947.
From the Director of Agriculture No.Y.3. 79/48-dated 29-6-1948 and 6-8-1948 rec'd 12.8.1948.

O R D E R:-

His Excellency the Governor of Madras generally approved the prospectus and syllabus of the Diploma course in Horticulture for Agriculture and Botany Graduates and the Certificate course in Horticulture for S.S.L.C, holders submitted by the Director of Agriculture with his letter dated 29-6-1948.

Sd/-x x x x

To

The Director of Agriculture.

rue copy/ S. Jayasankaran 2373
Office Assistant,
Madras Record Office.

10/3/54.